

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

December 18, 2001

Shozo Kawanishi

For: VISCERAL FAT DETERMINING DEVICE

Our Docket : ACO 301

Commissioner for Patents  
**BOX PATENT APPLICATION**  
Washington, D.C. 20231

Sir:

**PRELIMINARY AMENDMENT**

Preliminary to the examination of the above identified application, please enter the following amendments. The amendments to the specification are made to correct clerical errors. As required by 37 C.F.R. § 1.121, applicants have provided a separate marked-up version of the amended claims showing the changes relative to the previous version of those claims (attached).

In the specification:

Please replace the paragraph at page 31, lines 13-18, with the following amended paragraph.

--In step S5 shown in Fig. 3, VA is assumed to correlate only with the patient's WHR, the coefficients  $a_1$  and  $c_1$  are derived on this assumption, and VA is calculated with these coefficients and WHR. In calculating the estimated VA, alternatively to the formula (1), one of the following formulae (2) through (7) may be utilized:--

Please replace the paragraph at page 31, lines 26-30 and page 32 lines 1-3, with the following amended paragraph.

--FAT used in the formulae (3) and (7) is the body fat ratio expressed in percentage. (Hereinafter, FAT represents the body fat ratio.) Also, the character s in the formula (4) represents the abdominal subcutaneous fat thickness. Formula (2) is for a calculation of an estimated VA based on correlation of VA with the patient's WHR and BMI. Formula (3) is for a calculation of an estimated VA based on correlation of VA with the patient's WHR and FAT.--

Please replace the paragraph at page 32, lines 10-14, with the following amended paragraph.

--Further, Formula (6) is for a calculation of an estimated VA based on correlation of VA with the patient's WHR and bioelectrical impedance Z. Still further, Formula (7) is for a calculation of an estimated VA based on correlation of VA with the patient's WHR and  $TL2/Z$ .--

Please replace the paragraph at page 33, lines 13-23, with the following amended paragraph.

--If these Formulae (1) through (7) are used with the addition of the correction term  $Y_c$  given by Formula (8) and the correction term  $X_c$  give by Formula (9) in the calculation of VA, it becomes possible to reflect the patient's personal physical characteristics in terms of the age and sex more precisely. Either one or both of the correction terms  $Y_c$  and  $X_c$

may be added to any of the formulae (1) through (7). If both of the  $Y_c$  and  $X_c$  are added in the calculation using anyone of the formulae (1) – (7), it becomes possible to obtain the VA with more precise reflection of the patient's personal physical characteristics.--

In the Claims:

Please replace claims 3, 15, and 18-21, with the following amended claims 3, 15, and 18-21.

3. (Amended) The visceral fat determining device according to claim 1, further comprising body fat ratio measuring means for measuring a bioelectrical impedance  $Z$  of the patient via electrodes contacted to end portions of the patient and for calculating a body fat ratio FAT of the patient based on the measured bioelectrical impedance  $Z$  and the inputted personal data or a portion thereof,

wherein the body fat ratio FAT obtained by the body fat ratio measuring means is displayed on the display device.

15. (Amended) The visceral fat determining device according to claim 4, further comprising body fat ratio measuring means for measuring a bioelectrical impedance  $Z$  of the patient via electrodes contacted to end portions of the patient and for calculating a body fat ratio FAT of the patient based on the measured bioelectrical impedance  $Z$  and the inputted personal data or a portion thereof,

wherein the body fat ratio FAT obtained by the body fat ratio measuring means is

displayed on the display device.

18. (Amended) The visceral fat determining device according to claim 4, wherein the calculation of the estimated value of abdominal visceral fat cross sectional area VA is performed with addition of a correction term by age and/or a correction term by sex, of the patient.

19. (Amended) The visceral fat determining device according to claim 4, wherein a plurality of ranking levels defined by a plurality of standard values are provided in advance for the abdominal visceral fat cross sectional area VA, the estimated value of the abdominal visceral fat cross sectional area VA given by the calculation being displayed on the display device in conformity with the ranking levels.

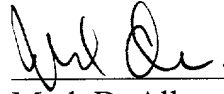
20. (Amended) The visceral fat determining device according to claim 1, wherein the abdominal girth WL is provided by an abdominal girth at the fourth lumbar vertebrae of the patient, and the gluteal girth HL is provided by a girth measured generally at the thickest portion on the buttocks of the patient.

21. (Amended) The visceral fat determining device according to claim 1, further comprising size measuring means for measuring the abdominal girth WL and the gluteal girth HL.

The Examiner is requested to contact the undersigned with any questions concerning this preliminary amendment.

Respectfully submitted,

KOLISCH, HARTWELL, DICKINSON,  
McCORMACK & HEUSER



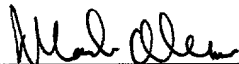
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(Signature of Person Depositing)

VERSION WITH MARKINGS TO SHOW CHANGES MADEIn the Specification:

Please replace the paragraph at page 31, lines 13-18, with the following.

--In step S5 shown in Fig. 3, VA is assumed to correlate only with the patient's WHR, the coefficients  $a_1$  and  $c_1$  are derived on this assumption, and VA is calculated with these coefficients and WHR. In calculating the estimated VA, alternatively to the formula (1), one of the following formulae (2) through [(5)] (7) may be utilized:--

Please replace the paragraph at page 31, lines 26-30 and page 32 lines 1-3, with the following.

--FAT used in the formulae (3) and [(5)] (7) is the body fat ratio expressed in percentage. (Hereinafter, FAT represents the body fat ratio.) Also, the character  $s$  in the formula (4) represents the abdominal subcutaneous fat thickness. Formula (2) is for a calculation of an estimated VA based on correlation of VA with the patient's WHR and BMI. Formula (3) is for a calculation of an estimated VA based on correlation of VA with the patient's WHR and FAT.--

Please replace the paragraph at page 32, lines 10-14, with the following.

--Further, Formula (6) is for a calculation of an estimated VA based on correlation of VA with the patient's WHR and bioelectrical impedance Z. Still further, Formula [(5)] (7) is for a calculation of an estimated VA based on correlation of VA with the patient's WHR and  $TL^2/Z$ .--

Please replace the paragraph at page 33, lines 13-23, with the following.

--If these Formulae (1) through [(5)] (7) are used with the addition of the correction term  $Y_c$  given by Formula (8) and the correction term  $X_c$  give by Formula (9) in the calculation of VA, it becomes possible to reflect the patient's personal physical characteristics in terms of the age and sex more precisely. Either one or both of the correction terms  $Y_c$  and  $X_c$  may be added to any of the formulae (1) through [(5)] (7). If both of the  $Y_c$  and  $X_c$  are added in the calculation using anyone of the formulae (1) – [(5)] (7), it becomes possible to obtain the VA with more precise reflection of the patient's personal physical characteristics.--

In the Claims:

Please amend claims 3, 15, and 18-21, as follows.

3. (Amended) The visceral fat determining device according to claim 1[ or 2], further comprising body fat ratio measuring means for measuring a bioelectrical impedance Z of the patient via electrodes contacted to end portions of the patient and for calculating a

body fat ratio FAT of the patient based on the measured bioelectrical impedance Z and the inputted personal data or a portion thereof,

wherein the body fat ratio FAT obtained by the body fat ratio measuring means is displayed on the display device.

15. (Amended) The visceral fat determining device according to [any one of] claim[s] 4[, 5, 7, 8, 9 and 10], further comprising body fat ratio measuring means for measuring a bioelectrical impedance Z of the patient via electrodes contacted to end portions of the patient and for calculating a body fat ratio FAT of the patient based on the measured bioelectrical impedance Z and the inputted personal data or a portion thereof,

wherein the body fat ratio FAT obtained by the body fat ratio measuring means is displayed on the display device.

18. (Amended) The visceral fat determining device according to [any one of] claim[s] 4[ to 15], wherein the calculation of the estimated value of abdominal visceral fat cross sectional area VA is performed with addition of a correction term by age and/or a correction term by sex, of the patient.

19. (Amended) The visceral fat determining device according to [any one of] claim[s] 4[ to 18], wherein a plurality of ranking levels defined by a plurality of standard values are provided in advance for the abdominal visceral fat cross sectional area VA, the estimated value of the abdominal visceral fat cross sectional area VA given by the



calculation being displayed on the display device in conformity with the ranking levels.

20. (Amended) The visceral fat determining device according to [any one of] claim[s] 1[ to 19], wherein the abdominal girth WL is provided by an abdominal girth at the fourth lumbar vertebrae of the patient, and the gluteal girth HL is provided by a girth measured generally at the thickest portion on the buttocks of the patient.

21. (Amended) The visceral fat determining device according to [any one of] claim[s] 1[ to 20], further comprising size measuring means for measuring the abdominal girth WL and the gluteal girth HL.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Date : January 31, 2002

Shozo Kawanishi

Our Docket : ACO 301

Serial No. : 10/018,874

Filed : December 18, 2001

For : VISCERAL FAT DETERMINING DEVICE

Commissioner for Patents  
Washington, D.C. 20231

Sir:

**SUPPLEMENTAL PRELIMINARY AMENDMENT**

Preliminary to the examination of the above identified application, please enter the following amendments. The amendments to the specification are made to correct clerical errors. As required by 37 C.F.R. § 1.121, applicants have provided a separate marked-up version of the amended claims showing the changes relative to the previous version of those claims (attached).

**In the specification:**

Please replace the paragraph at page 27, line 28, to page 28, line 7, with the following amended paragraph.

--These coefficients and constants  $a_1, a_2, a_3, a_4, a_5, a_6, a_7, b_1, b_2, c_1, c_2, c_3, c_4, c_5,$   
 $c_6, c_7, d_1, d_2, e_1, e_2, f_1,$  and  $g_1$  are obtained elsewhere, and then inputted to the visceral  
fat determining device 10 for storage. These coefficients are obtained in the

following procedure. Specifically, for a mass of unspecified individuals, measurements are made for their individual actual abdominal visceral fat cross sectional area VA. Measurements are also made for the WHR, BMI, the body fat ratio FAT, and the abdominal subcutaneous fat thickness s for each of the individuals.--

Please replace the paragraph at page 31, lines 13-24, with the following amended paragraph.

--In step S5 shown in Fig. 3, VA is assumed to correlate only with the patient's WHR, the coefficient  $a_1$  and the constant  $c_1$  are derived on this assumption, and VA is calculated with this coefficient, constant, and WHR. In calculating the estimated VA, alternatively to the formula (1), one of the following formulae (2) through (5) may be utilized:

$$VA = a_2 \cdot WHR + b_1 \cdot BMI + c_2 \quad (2)$$

$$VA = a_3 \cdot WHR + d_1 \cdot FAT + c_3 \quad (3)$$

$$VA = a_4 \cdot WHR + b_2 \cdot BMI + e_1 \cdot s + c_4 \quad (4)$$

$$VA = a_5 \cdot WHR + d_2 \cdot FAT + e_2 \cdot s + c_5 \quad (5)$$


$$VA = a_6 \cdot WHR + f_1 \cdot Z + c_6 \quad (6)$$

$$VA = a_7 \cdot WHR + g_1 \cdot T_L^2 / Z + c_7 \quad (7)--$$

The Examiner is requested to contact the undersigned with any questions concerning this preliminary amendment.

Respectfully submitted,

KOLISCH, HARTWELL, DICKINSON,  
McCORMACK & HEUSER



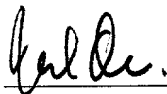
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MDA:gp

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231 on January 31, 2002.



Mark D. Alleman  
Date of Signature: January 31, 2002



VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Please amend the paragraph at page 27, line 28, to page 28, line 7, with the following amended paragraph.

--These coefficients and constants  $a_1, a_2, a_3, a_4, a_5, a_6, a_7, b_1, b_2, c_1, c_2, c_3, c_4, c_5, c_6, c_7, d_1, d_2, e_1, e_2, f_1,$  and  $g_1$  are obtained elsewhere, and then inputted to the visceral fat determining device 10 for storage. These coefficients are obtained in the following procedure. Specifically, for a mass of unspecified individuals, measurements are made for their individual actual abdominal visceral fat cross sectional area VA. Measurements are also made for the WHR, BMI, the body fat ratio FAT, and the abdominal subcutaneous fat thickness  $s$  for each of the individuals.--

Please replace the paragraph at page 31, lines 13-24, with the following amended paragraph.

--In step S5 shown in Fig. 3, VA is assumed to correlate only with the patient's WHR, the coefficient[s]  $a_1$  and the constant  $c_1$  are derived on this assumption, and VA is calculated with this[ese] coefficient[s], constant, and WHR. In calculating the estimated VA, alternatively to the formula (1), one of the following formulae (2) through (5) may be utilized:

$$VA = a_2 \cdot WHR + b_1 \cdot BMI + c_2 \quad (2)$$

$$VA = a_3 \cdot WHR + d_1 \cdot FAT + c_3 \quad (3)$$

$$VA = a_4 \cdot WHR + b_2 \cdot BMI + e_1 \cdot s + c_4 \quad (4)$$

$$VA = a_5 \cdot WHR + d_2 \cdot FAT + e_2 \cdot s + c_5 \quad (5)$$

$$VA = a_6 \cdot WHR + f_1 \cdot Z + c_6 \quad (6)$$

$$VA = a_7 \cdot WHR + g_1 \cdot T_L^2 / Z + c_7 \quad (7)--$$